



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 10**  
1200 Sixth Avenue, Suite 900  
Seattle, WA 98101-3140

October 6, 2015

The Honorable Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First St., NE, Room 1A  
Washington, DC 20426

Dear Secretary Bose:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement (DEIS) for the Oregon LNG Terminal and Pipeline Project (Oregon LNG) project and the Washington Expansion Project (WEP) (EPA Project No. 12-0055-FRC). Our review has been conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

Staff of the Federal Energy Regulatory Commission (FERC) have prepared a DEIS for the natural gas facilities (collectively referred to as the Project) proposed by Oregon LNG and Northwest Pipeline LLC (Northwest). The project facilities would be in Clatsop, Tillamook, Washington, Yamhill, Marion and Clackamas counties in Oregon, and Cowlitz, Lewis, Thurston, Pierce, King, Snohomish, Skagit and Whatcom counties in Washington. The project is designed to export an equivalent of about 456.3 billion cubic feet per year of natural gas to customers in foreign markets.

Specific components of the Oregon LNG project include a turning basin and berth for one LNG marine carrier on the Oregon side of the Columbia River in Warrenton; two full-containment, 160,000 cubic meter LNG storage tanks; natural gas pretreatment facilities; two liquefaction trains, regasification facilities, and other terminal support structures and systems; an 86.8-mile-long, 36-inch-diameter bi-directional pipeline; and one 40-megawatt electrically driven gas compressor station. Specific components of the WEP Project include 140.6 miles of 36-inch-diameter pipeline loop along Northwest's existing pipeline in 10 noncontiguous segments; ancillary pipeline facilities; and 96,000 horsepower of additional compression at five existing compressor stations.

The non-jurisdictional components associated with the Oregon LNG and WEP project would include the LNG marine carriers; the waterway for LNG marine traffic; terminal wastewater and water lines; new electric transmission lines and substation facilities; and upgrades to existing electrical facilities.

The EPA recognizes the management challenges created by the multiple jurisdictional boundaries within the planning area, as well as the diverse resource needs, and multiple statutory requirements. The FERC staff are to be commended for their effort in this ambitious and difficult undertaking. We also want to recognize the efforts of FERC, the applicant, and their contractors to engage state and federal resource agencies in a meaningful dialogue about this project. We trust this will help inform FERC's selection and development of the proposed action in the final EIS.

The EPA served as a cooperating agency on this project. In that capacity, the EPA participated in numerous cooperating agency calls and meetings. We are pleased with the progress that has been made in these forums, particularly with regard to sediment management and wetland mitigation efforts.

Our review of the DEIS finds that while many of our concerns have been addressed, additional information and analyses are needed. Our detailed comments and recommendations to address these information needs are included as an attachment.

Based on our review, we have assigned this draft EIS a rating of EC-2 (Environmental Concerns - Insufficient Information). A copy of the rating system used in conducting our review is enclosed for your reference. EPA appreciates the opportunity to engage with FERC as a cooperating agency and recognizes the challenges posed by adhering to the rigorous schedule assigned to this EIS.

If you have any questions regarding EPA's comments, please contact me at (206) 553-1601, or Teresa Kubo of my staff at (503) 326-2859.

Sincerely,



Christine B. Littleton, Manager  
Environmental Review and Sediment Management Unit

Enclosures:

1. EPA Region 10 Detailed Comments
2. U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

**EPA Region 10 Detailed Comments  
Oregon LNG and Washington Expansion Projects  
Draft Environmental Impact Statement**

**Aquatic and Wetland Resources**

Construction of the LNG terminal facilities would result in permanent loss of about 33.9 acres of wetlands and other aquatic resources, and temporary impacts to about 2 acres of wetlands and 109 acres of other aquatic resources. Construction of the pipeline facilities would temporarily affect about 84.1 acres of wetlands and other aquatic resources, while operation of the pipeline would result in the permanent conversion of 22.2 acres of forested wetlands to other wetland types within the permanent right-of-way.

To mitigate for these wetland losses, the applicant proposes to create, enhance or protect existing wetlands and aquatic habitat at the mouth of Youngs River and the Carmichael mitigation site on the Nehalem River, and to purchase credits from the Claremont Road and Columbia River mitigation banks. The bulk of wetland compensatory mitigation for construction of the LNG terminal is proposed at the Youngs River site with up to 140 acres of mitigation. Proposed mitigation at the Youngs River site would primarily consist of breaching existing dikes in order to reestablish tidal connections between the Youngs River and the pasture area.

Due to the proximity of the Youngs River site to existing residential neighbors, and the potential to extend flood waters to inland residents, implementation of this mitigation proposal will require careful execution. It is also not clear whether the entire 140 acres were wetlands prior to dike construction. The potential exists that, even at a three-to-one ratio, this mitigation arrangement will represent a net loss of wetlands for the lower Columbia River watershed. The EPA is concerned that while this project will add some ecological benefits to the overall system, it may not result in a net gain in wetland habitat within the estuary system.

The applicant proposes to re-establish native freshwater tidal marsh as compensation for the loss and destruction of predominantly estuarine emergent tidal wetlands. It is not clear to what extent OLNG has fully investigated the availability of mitigation options that would provide a better fit with the types of wetland and other aquatic habitats impacted by the proposed OLNG terminal construction and operation activities. The EPA has concerns that the current mitigation proposal doesn't provide full replacement of the ecological values for the aquatic resources that will be impacted by the project.

Oregon LNG should identify an appropriate undisturbed reference area (or multiple reference areas) to serve as a target and baseline for the evaluation of their mitigation success. The final mitigation proposal should include a nearby un-diked tidal wetland reference area that already has hydrodynamic connections to the Lower Columbia River estuary and provides high ecological values for communities of emergent plants, fish, and wildlife. Ecologically intact reference areas should include permanent transects, archival photos and measurements of parameters important to the assessment of wetland ecological performance in both the reference area(s) and mitigation site.

Oregon LNG should also be required to develop a detailed monitoring plan to evaluate changes within the wetland mitigation area and to assess the recovery of wetland ecological functions and processes. The mitigation monitoring plan should be designed to periodically determine the extent to which ecological conditions within the mitigation area emulate ecological conditions within the nearby reference area and to evaluate the efficacy of the actions taken to meet the goals for the mitigation. The monitoring should be conducted over an extended period to ensure that the flooded wetlands at the

proposed Youngs Bay mitigation site are sufficiently inundated during a significant proportion of the high tides, that the flooded pasturelands are relatively free from opportunistic invasive species and noxious weeds, that the emergent plant communities are composed primarily of native species, that the restorative actions provide sufficient ecological structure and function to the side channels and tidal sloughs, and that the restored area actually provides new rearing habitat for juvenile salmon.

#### **Dredging and disposal at EPA's MCR Deep Water Site**

Under Section 102 of the Marine Protection, Research, and Sanctuaries Act (MPRSA), the EPA has sole authority for the designation and management of disposal sites in ocean waters to be used for the disposal of clean dredged material, known as Ocean Dredged Material Disposal Sites (ODMDS). The EPA designated the Mouth of Columbia River (MCR) Deep Water Site and Shallow Water Site in 2005. At the time of disposal site designation, the EPA is required to develop and implement a Site Management and Monitoring Plan (SMMP). The EPA and the U.S. Army Corps of Engineers (USACE) jointly developed the SMMP for the MCR sites, and we co-manage the disposal of dredged material at these two sites in accordance with the SMMP. Every year, the USACE is required to prepare an Annual Use Plan which describes the dredging and disposal that occurred in the previous year, and the plan for the upcoming dredging and disposal season. The EPA must approve the Annual Use Plan prior to site use by the USACE. Since these sites were designated, the USACE has been the only user of the Shallow Water Site and Deep Water Site.

The EPA appreciates the effort that Oregon LNG has demonstrated in researching and evaluating different options for disposal of dredged material. The DEIS identifies the Deep Water Site as the preferred option for disposal of the material dredged during construction (1.3 million cubic yards) and the material dredged to maintain the facility (300,000 cubic yards every 3 years). We find the analysis within the DEIS supporting this direction to be adequate. As Oregon LNG moves forward, however, please note that the EPA continues to support the beneficial re-use of dredged material. As the project moves into its operational phase, we encourage Oregon LNG to revisit and reassess potential options for nearshore placement of material dredged to maintain the facility.

As stated in the DEIS (consistent with EPA input), Oregon LNG must complete a site capacity assessment prior to the USACE request for EPA concurrence on the approval of a MPRSA section 103 permit. Oregon LNG will need to coordinate with the EPA and the USACE Ocean Dumping Coordinators in the development of the assessment. The site assessment includes, at a minimum: 1) a timeframe upon which to conduct an analysis (ranging between 10-20 years); 2) an analysis of how the proposed disposal will change the bathymetry and sediment dynamics on the seafloor of the Deep Water Site; 3) an analysis of how the proposed disposal will affect the longevity of the Deep Water Site; and 4) an analysis of how the proposed disposal will alter the availability of the Deep Water Site for use by USACE. A foundational piece of Oregon LNG's assessment should be the USACE's 2014 site capacity assessment, "MCR Deep Water Site – Ocean Dredged Material Disposal Site Utilization of Site Capacity during 2005 to 2014." This analysis and coordination with the EPA and the USACE would determine the drop zone(s) that Oregon LNG would use within the Deep Water Site, articulation of the mechanism and frequency of coordination between Oregon LNG and the agencies, and the required monitoring by Oregon LNG.

If an MPRSA Section 103 permit would be issued by the USACE, it would be valid for 3 years from the date of issuance. Given the expected volume of disposal, the regular frequency of disposal, and the frequency of permit approvals, Oregon LNG should expect to engage with the EPA and the USACE annually for the life of the project.

## **Transportation**

Construction of the Oregon LNG terminal and pipeline would negatively affect roadway transportation and traffic in the project area by increasing the number of vehicle trips per day on area roads as a result of workers commuting and construction vehicle traffic (DEIS ES-10). During terminal construction, five intersections in the planning area are expected to fail. The added trips due to construction would worsen existing traffic operations and result in an increased volume to capacity ratio, increased traffic delays, and diminished levels of service for most of the intersections near the terminal site (DEIS 4-295).

The FERC has included a recommendation within the DEIS that Oregon LNG develop a Traffic Mitigation Plan and a Terminal Construction Traffic Management Plan. We strongly endorse this inclusion and recommend that the traffic mitigation and management plans consider mass transit options.

Page 2-12 of the DEIS notes that Oregon LNG would provide a parking lot for construction workers and storage of terminal construction materials on the subleased terminal parcel. It also states that no off-site parking or storage for terminal-related activities would be required. Given the anticipated impacts to traffic near the terminal, we recommend that Oregon LNG develop off-site parking options supported by crew bus or other park and ride options. All parking areas (on and off-site) should be disclosed and analyzed in the FEIS. Detail should also be included with respect to the available forms of mass transportation. We recommend that air pollution from buses transporting workers between off-site parking areas and the work site be minimized by using buses with model year 2010 or later engines meeting the EPA's most stringent emission standards.

Page 4-601 indicates that off-site parking and crew buses would be used to transport workers to and from the work sites for the WEP. We recommend that the Traffic Mitigation Plan for the Oregon Pipeline incorporate similar measures to alleviate temporary impacts on traffic and air quality resulting from daily commuting to and from the Oregon Pipeline work sites.

## **Air Quality**

Page 4-337 of the DEIS includes a list of measures that Oregon LNG will use to limit construction-related dust and emissions. We support the listed measures, but recommend that the list be expanded to include the following:

### Fugitive Dust Source Controls:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to both inactive and active sites, during workdays, weekends, holidays, and windy conditions.
- Install wind fencing, and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage, and limit speeds to 15 miles per hour. Limit speed of earth-moving equipment to 10 mph.

### Mobile and Stationary Source Controls:

- Reduce use, trips, and unnecessary idling of heavy equipment.

- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, where applicable, and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations
- If practicable, lease new, clean equipment meeting the most stringent of applicable Federal or State standards.

### **Land Use – Railroad Spurs**

Page 4-309 of the DEIS states that Oregon LNG would likely construct rail spurs off the main rail lines in certain areas for offloading of materials. We do not, however, find those spur locations identified or analyzed within the document. We recommend that the proposed rail spurs be identified and analyzed in the FEIS. Should additional wetland acres be impacted, mitigation plans would need to be revised accordingly.

### **Indirect Effects**

In its discussion of topics outside the scope of analysis, the DEIS notes that because the Oregon LNG Project does not depend on additional U.S. production, it is speculative to assume that the Oregon LNG Project would cause increased natural gas production (DEIS page 1-12). We appreciate the unknown variables and influences on the production process, however, we continue to recommend that the Oregon LNG FEIS consider the potential for increased natural gas production as a result of the proposed terminal and the potential for environmental impacts associated with these potential increases. Both FERC and the Department of Energy (DOE) have recognized that an increase in natural gas exports will result in increased production.<sup>1</sup> We recognize that the FERC has concluded in this and previous NEPA analyses that the nature of natural gas supply and the pipeline system in the U.S. and Canada makes it difficult to predict accurately where the additional gas development activity will occur, and that this affects the feasibility of evaluating localized environmental impacts. DOE has released a study by the National Energy Technology Laboratory (NETL), entitled "Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States."<sup>2</sup> We note that NETL recognizes that many of the potential impacts will vary considerably by the production location due to differences in hydrology, geology, ecology, air quality, regulatory structure and other factors. Nonetheless, the Addendum provides the kind of conceptual level analysis of the types of impacts that are likely to occur from increased production. We recommend that this study be considered as part of the decision making for this project and incorporated by reference in the Oregon LNG FEIS.

### **Greenhouse Gas Emissions**

Page 1-13 of the DEIS notes that the "life-cycle" cumulative environmental impacts are beyond the jurisdictional authority of FERC and cannot be reasonably calculated, given the number of unknown elements in the chain and actions by entities other than Oregon LNG and Northwest. We appreciate that the DEIS includes a helpful discussion of the greenhouse gas (GHG) emissions associated with construction of the project and annual emissions from the operation of the liquefaction facility. In

<sup>1</sup> Effect of Increased Natural Gas Exports on Domestic Energy Markets, as requested by the Office of Fossil Energy. U.S. Energy Information Administration. January 2012 ([http://energy.gov/sites/prod/files/2013/04/f0/fe\\_eia\\_lng.pdf](http://energy.gov/sites/prod/files/2013/04/f0/fe_eia_lng.pdf)) and Cameron LNG EIS, Appendix L (Response to Comments), p. L-36 (<http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=13530753>)

<sup>2</sup> Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States. DOE. ([http://energy.gov/sites/prod/files/2014/05/f16/Addendum\\_0.pdf](http://energy.gov/sites/prod/files/2014/05/f16/Addendum_0.pdf))

addition to operational and construction emissions, there are also GHG emissions associated with the production, transport, and combustion of the natural gas proposed to be exported by the project. Because of the global nature of climate change, even where the ultimate end use of the natural gas occurs outside the U.S., additional greenhouse gas emissions attributable to the project would affect the United States. Consistent with NEPA and CEQ regulations, because any such emissions contribute to climate change impacts in the U.S., it is appropriate to consider and disclose them in the Oregon LNG FEIS due to their reasonably close causal relationship to the project. FERC's DEIS for the Jordan Cove Energy and Pacific Connector Gas Pipeline project included useful calculations of GHG emissions from end use of the gas exported by the facility, and we recommend that the Oregon LNG FEIS include the same calculations.

DOE has issued two documents that are helpful in assessing the GHG emissions implications of the project. They are the Addendum mentioned above, and NETL's report, entitled "Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States."<sup>3</sup> These reports provide a helpful overview of GHG emissions from all stages of a project, from production through transmission and combustion. The NETL report also includes comparative analysis of GHG emissions associated with other domestic fuel sources and LNG exports as they relate to other possible fuel sources in receiving regions. This information is helpful to decision makers in reviewing the foreseeable GHG emissions associated with the increased production of natural gas and the export of LNG, and how they compare to other possible fuels. The EPA recommends that both DOE reports be considered as part of the decision making process for this project and incorporated by reference in the Oregon LNG FEIS. FERC may also want to consider adapting DOE's analysis to more specifically consider the GHG implications of this project.

#### **Methane Leakage Prevention:**

We appreciate that Oregon LNG is actively working with the Oregon Department of Energy to provide risk mitigation measures for a number of areas of concern, including greenhouse gas emissions from the operation of the proposed LNG terminal. We recommend that the FEIS include these measures, as well as best management practices to reduce leakage of methane associated with operation of the facility. The EPA has compiled useful information on technologies and practices that can help reduce methane emissions from natural gas systems, including information regarding emission reduction options for Liquefied Natural Gas storage, import and export facilities.<sup>4</sup>

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<sup>3</sup> Life Cycle Greenhouse Gas Perspective on Exporting Liquefied Natural Gas from the United States. DOE/NETL-2014/1649 (<http://energy.gov/fe/life-cycle-greenhouse-gas-perspective-exporting-liquefied-natural-gas-united-states>)

<sup>4</sup> [http://www.epa.gov/gasstar/methaneemissions/storage\\_import\\_export.html](http://www.epa.gov/gasstar/methaneemissions/storage_import_export.html)

**U.S. Environmental Protection Agency Rating System for  
Draft Environmental Impact Statements  
Definitions and Follow-Up Action\***

**Environmental Impact of the Action**

**LO – Lack of Objections**

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

**EC – Environmental Concerns**

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

**EO – Environmental Objections**

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

**EU – Environmentally Unsatisfactory**

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

**Adequacy of the Impact Statement**

**Category 1 – Adequate**

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

**Category 2 – Insufficient Information**

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

**Category 3 – Inadequate**

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.